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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/085,061	03/01/2002	Gary Qu Jin	12917-US	8160
33361	7590	04/04/2006	EXAMINER	
ADAMS PATENT & TRADEMARK AGENCY P.O. BOX 11100, STATION H OTTAWA, ON K2H 7T8 CANADA			WANG, TED M	
			ART UNIT	PAPER NUMBER
			2611	

DATE MAILED: 04/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/085,061	Applicant(s) JIN, GARY QU	
	Examiner Ted M. Wang	Art Unit 2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 20 January 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 2,4-11,13 and 15-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 11 is/are allowed.
- 6) ☒ Claim(s) 2,4-7,13,15,17,18 and 21 is/are rejected.
- 7) ☒ Claim(s) 8-10,16,19 and 20 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 January 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>12/27/2005</u> | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Arguments***

1. The indicated allowability of claims 4-7, 9, 15, and 16 are withdrawn in view of the newly discovered reference(s) to Awater et al. (US 6,175,551) provided by the instant applicant in a newly submitted IDS, dated 27 December 2005. Rejections based on the newly submitted IDS reference(s) follow.
2. Applicant's arguments with respect to claims 2, 13 and 17-21 have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Objections***

3. Claims 2, 5-10, 13, 16 and 18-20 are objected to because of the following informalities:
  - Claims 2, 5-10, 13, 16 and 18-20, line 1, change "A" to --- The ---.
  - Claim 6, line 2, after "factor" inserts --- C ---.
  - Claim 9, line 3, changes " $x(k_1)$ " to ---  $x(n_1)$  ---.
  - Claim 13, line 1, changes "12" to --- 21 --- and delete --- and ---.
  - Claim 15, line 8, after "outputs" deletes --- a ---.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the

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subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 2, 4-7, 13, 15, 17, 18 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Atwater et al. (US 6,175,551).

- With regard claim 4, Atwater et al. discloses a method of effecting peak reduction in a DMT signal (column 4 lines 47-55, it is noted that for multi-carrier techniques such as discrete multi-tone modulation (DMT) is also known as orthogonal frequency division multiplexing, or OFDM), comprising the steps of

Creating a predetermined signature waveform (column 4 line 60 – column 5 line 17, Fig.6 elements 82 and 84, and column 5 lines 23-36), and

subtracting said predetermined signature waveform from said DMT signal in the region of a signal peak whenever the DMT signal is above a predetermined maximum level (Fig.4-6 element 64 and column 4 line 60 – column 5 line 26, Fig.8 and column 5 lines 44-52),

wherein said DMT signal is first passed through an IFFT unit which produces a time domain signal (Fig.4-6 element 28 output),

wherein said IFFT unit generates a first output M representing a maximal value of said signal (Fig.4-6 elements 28 and 52, and column 4 line 60 – column 5 line 26), and

wherein said predetermined signature waveform is subtracted from said DMT signal when the absolute value  $|M|$  is above a predetermined value (Fig.4-6

element 64 and column 4 line 60 – column 5 line 26, Fig.8 and column 5 lines 44-52, where the peak detector will generate a predetermined signature waveform (cancellation signal) whenever the amplitude (the absolute value) is above a threshold (a predetermined) value.)

Awater et al. discloses all of the subject matter as described in the above paragraph except for specifically teaching wherein said IFFT unit generates a second output I representing the address location of the maximal value I in said signal.

However, Awater et al. teaches that the peak detector 52 couples to the main signal path following the IFFT block 28. For each peak, a cancellation signal is generated by selection of a reference signal from a look-up table 82. The reference signal is then cyclically shifted according to the peak delay, and the amplitude and phase are scaled such that the signal peak is reduced to the desired value after cancellation at block 84 (column 5 lines 30-36). i.e. for each peak of the signature waveform (28 output) above a threshold the predetermined reference signal (predetermined signature waveform) is selected from the lookup table 82 at a specific address or location.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a look up table inside a RAM or ROM to store the predetermined reference signal at a specific location (address) instead of outputting the address information to the related predetermined signature waveform as recited in claim 1 from the IFFT unit since they perform the

equivalence function for their use in the digital communication art and the selection of any of these known equivalents to locate a predetermined reference signal related to the input peak above a threshold would be within the level of ordinary skill in the art.

- With claim 5, Awater et al. further discloses wherein said signature waveform has fewer samples than said DMT signal, and said signature signal is first aligned with said signal peak prior to subtraction (Fig.8 element 84 and column 5 lines 23-36). It is inherent that the signature waveform has fewer samples than said DMT signal since the DMT signal is directly fed to the subtractor 64 via delay element 66 and the predetermined waveform signature signal is generated only when the input DMT signal peak is above a threshold.
- With claim 6, Awater et al. further discloses wherein said signature waveform is first multiplied by a scaling factor to match said DMT signal (Fig.8 element 84 and column 5 lines 32-36).
- With claim 7, Awater et al. further discloses wherein said scaling factor is determined from said absolute value  $|M|$  (Fig.8 element 84 and column 5 lines 32-36).
- With regard claim 15, which is an apparatus claim related to claim 7, all limitation is contained in claim 7. The explanation of all the limitation is already addressed in the above paragraph.
- With regard claims 17 and 2, all limitation is contained in claim 6. The explanation of all the limitation is already addressed in the above paragraph.

- With regard claim 18, all limitation is contained in claim 7. The explanation of all the limitation is already addressed in the above paragraph.
- With regard claims 21 and 13, which is an apparatus claim related to claim 6, all limitation is contained in claim 6. The explanation of all the limitation is already addressed in the above paragraph.

***Allowable Subject Matter***

6. Claim 11 is allowed.
7. Claims 8-10, 16, 19 and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten to overcome the objection(s) set forth in this Office action and rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

8. Applicant's submission of an information disclosure statement under 37 CFR 1.97(c) with the fee set forth in 37 CFR 1.17(p) on 27 December 2005 prompted the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 609.04(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

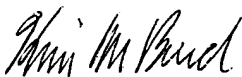
extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ted M. Wang whose telephone number is 571-272-3053. The examiner can normally be reached on M-F, 7:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on 571-272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ted M. Wang

  
**KEVIN BURD**  
**PRIMARY EXAMINER**

Ted M Wang  
Examiner  
Art Unit 2634